CLAIMS:

1. A non-contact roll contour measuring apparatus comprising

   an analog sensor having a non-contact measuring probe,

   a linear rail,

   a means for moving the sensor along the rail in a line which is in parallel with the center line of a roll,

   a means of collecting data from the sensor.

2. The apparatus of claim 1 further comprising a means for positioning the rail in parallel with the center line of the roll.

3. The apparatus of claim 1 wherein the sensor is a capacitance sensor.

4. The apparatus of claim 1 further comprising a means of translating and displaying the data.

5. The apparatus of claim 1 wherein the sensor comprises multiple measuring probes for simultaneously measuring two or more of crown, taper, Ra, PPI, traverse and body diameter.

6. The apparatus of claim 1 wherein the probe base line specification measuring range equals 0.00" to 0.0005" with a tolerance of ±1%.

7. The apparatus of claim 1 wherein the probe base line specification measuring range equals 0.00" to 0.00005" with a tolerance of ±0.5%.

8. A method of measuring the surface characteristics of a work roll comprising

providing an analog sensor having a non-contact measuring probe with a linear rail and a means for moving the sensor along the rail in a line which is in parallel with the center line of a roll,

moving the sensor along the rail while collecting data from the sensor.

9. The method of claim 8 further comprising the steps of translating and displaying the data.

10. The method of claim 9 wherein the data is displayed as measurements of crown, taper, Ra, PPI, traverse, body diameter, defects or inclusions.

11. The method of claim 8 wherein the data is collected at a rate of about 1,000 traces per second.

12. The method of claim 8 wherein the data is collected at a rate of about 4,000 traces per second or 16,000 traces per second or more.